

Cyanide Code Production Verification Audit

SUMMARY AUDIT REPORT, Rev. 2

DuPont Sodium Cyanide Processing & Packaging Operations

Audit Dates: March 20-28, 2006

Auditor:
Nicole Jurczyk
Management System Solutions, Inc.
www.mss-team.com



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SUMMARY AUDIT REPORT, REV. 2

**Name of Cyanide
Production**

Operation: **DuPont Sodium Cyanide Operations consisting of:**

- (1) Memphis Plant (Memphis, TN)
- (2) LSI Packaging Operation (Memphis, TN)
- (3) Carlin Terminal (Carlin, NV)

Names of Facility

Owners:

- (1) E.I. duPont de Nemours and Company, Inc (Memphis Plant)
- (2) Lemm Services Inc. (LSI Packaging Operation)
- (3) E.I. duPont de Nemours and Company, Inc (Carlin Terminal)

Names of Facility

Operators:

- (1) E.I. duPont de Nemours and Company, Inc (Memphis Plant)
- (2) Lemm Services Inc. (LSI Packaging Operation)
- (3) Lemm Services Inc. (Carlin Terminal)

Names and Addresses of Responsible Managers:

(1) Memphis Plant	(2) LSI Packaging Operation	(3) Carlin Terminal
John Wasilik, Plant Manager DuPont Memphis Plant 2571 Fite Road Memphis, TN 38127 USA Tel. 901-353-7201 Fax. 901-353-7397	Ed Jodzio, Plant Manager Lemm Services Inc 5200 Old Millington Memphis, TN 38127 USA Tel. 901-353-5056 Fax. 901-353-4855	Marley Robinson, Manager Lemm Services Inc. 3 miles east of Carlin on old Highway 40 Carlin, NV 89822 USA Tel. 800-798-6333 Fax. 775-754-6053

DuPont Sodium Cyanide Operation *Nicole T. R.* April 5, 2006
Name of Facility Lead Auditor Date

Location detail and description of operation:

DuPont produces sodium cyanide for gold mining operations at its DuPont Memphis Plant located near Memphis Tennessee USA in Woodstock, Tennessee. The DuPont sodium cyanide operation is one of several processes on DuPont's Memphis Plant industrial park location. There are approximately 200 DuPont employees at the industrial park with approximately 25% of them involved in the sodium cyanide operation. DuPont has been producing sodium cyanide in Memphis since 1953. DuPont produces in excess of 100 million pounds per year of sodium cyanide at its Memphis Plant to meet its global cyanide demand. The sodium cyanide is produced from the reaction of hydrogen cyanide (which the sodium cyanide operation receives by pipeline) with sodium hydroxide (which the sodium cyanide operation receives by pipeline) under vacuum. The crystallized sodium cyanide is separated from the mother liquor using filtration, dried using heated air, briquetted and prepared for packaging.

The sodium cyanide produced at DuPont's Memphis Plant is packaged at the Memphis Plant, at a local contract packager (Lemm Services – see address above for location) and at DuPont's packaging Terminal in Carlin, Nevada, USA (see address above for location). The Memphis Plant puts sodium cyanide in bulk and semi-bulk packages. The local packager puts sodium cyanide in semi-bulk and small packages, has approximately 25 employees and has been in operation since 1994. The Carlin Terminal puts sodium cyanide in semi-bulk and bulk packages and also dissolves sodium cyanide in alkaline water to make a nominal 30% sodium cyanide solution. Carlin has approximately 10 employees and has been in operation since 1982.

DuPont Sodium Cyanide Operation
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Nick F. R.
Lead Auditor

April 5, 2006
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Auditor's Finding

This operation is

- in full compliance
- in substantial compliance *(see below)
- not in compliance

with the International Cyanide Management Code.

* For cyanide production operations seeking Code certification, the Corrective Action Plan to bring an operation in substantial compliance into full compliance must be enclosed with this Summary Audit Report. The plan must be fully implemented within one year of the date of this audit.

Audit Company:	Management System Solutions, Inc. www.mss-team.com
Audit Team Leader:	Nicole Jurczyk E-mail: CodeAudits@mss-team.com
Names and Signatures of Other Auditors:	N/A
Date(s) of Audit:	March 20-28, 2006

I attest that I meet the criteria for knowledge, experience and conflict of interest for Code Verification Audit Team Leader, established by the International Cyanide Management Institute and that all members of the audit team meet the applicable criteria established by the International Cyanide Management Institute for Code Verification Auditors.

I attest that this Summary Audit Report accurately describes the findings of the verification audit. I further attest that the verification audit was conducted in a professional manner in accordance with the International Cyanide Management Code Verification Protocol for Cyanide Production Operations and using standard and accepted practices for health, safety and environmental audits.

DuPont Sodium Cyanide Operation

April 5, 2006

Name of Facility

Signature of Lead Auditor

Date

Nicole Jurczyk
Nicholas D. Van Heest

NICHOLAS D. VAN HEEST
NOTARY PUBLIC OF DELAWARE
My Commission Expires June 1, 2007

DuPont Sodium Cyanide Operation

April 5, 2006

Name of Facility

Lead Auditor

Date

Nicole Jurczyk

SUMMARY AUDIT REPORT, REV. 2

1. OPERATIONS: *Design, construct and operate cyanide production facilities to prevent release of cyanide.*

Production Practice 1.1: *Design and construct cyanide production facilities consistent with sound, accepted engineering practices and quality control/quality assurance procedures.*

The operation is in full compliance with
 in substantial compliance with Production Practice 1.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: Quality control and quality assurance records were reviewed for all three locations. Process hazard analysis methods and procedures were used to design and build all three facilities. All facilities are built on concrete and they have containment systems that ensure full containment. All facilities use management system procedures and forms to inspect their equipment and containment systems regularly to ensure functionality and integrity of equipment and facilities.

Production Practice 1.2: *Develop and implement plans and procedures to operate cyanide production facilities in a manner that prevents accidental releases.*

The operation is in full compliance with
 in substantial compliance with Production Practice 1.2
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: All three facilities have detailed procedures, work instructions and checklists that enable them to operate in a safe and environmentally responsible manner. Changes to operations or processes are reviewed by multiple levels of each organization prior to being implemented. Procedures are reviewed regularly to ensure continued adequacy.

Production Practice 1.3: *Inspect cyanide production facilities to ensure their integrity and prevent accidental releases.*

The operation is in full compliance with
 in substantial compliance with Production Practice 1.3
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: All three sites have inspection programs to ensure the integrity of process equipment and prevent accidental releases of cyanide. Preventive maintenance records and operator inspection sheets were reviewed at all sites. Operators at all sites showed a high level of awareness regarding the importance of performing thorough inspections. Records from all sites indicated that corrective actions are taken in a timely manner in response to deficiencies noted during

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preventive maintenance and/or daily inspection rounds.

2. WORKER SAFETY: *Protect workers' health and safety from exposure to cyanide.*

Production Practice 2.1: *Develop and implement procedures to protect plant personnel from exposure to cyanide.*

in full compliance with

The operation is in substantial compliance with Production Practice 2.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: All three sites have mature detailed procedures that are used for normal and abnormal operating conditions. The buddy system is implemented throughout each facility and PPE requirements are identified for each type of job. Stationary and personal cyanide monitors are used at each site and the maintenance and calibration of these units is part of the overall maintenance programs. Personal conduct and safety rules are similar at each site and employees indicate that they respect and adhere to the rules.

Production Practice 2.2: *Develop and implement plans and procedures for rapid and effective response to cyanide exposure.*

in full compliance with

The operation is in substantial compliance with Production Practice 2.2

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: All three locations have detailed emergency plans and procedures available for use during a cyanide exposure incident. Emergency equipment including antidotes and medicines were available at each site and each location had systems in place to inspect the equipment on a regular basis. Each location runs drills several times per year to ensure that employees are kept current with their response skills.

3. MONITORING: *Ensure that process controls are protective of the environment.*

Production Practice 3.1: *Conduct environmental monitoring to confirm that planned or unplanned releases of cyanide do not result in adverse impacts.*

in full compliance with

The operation is in substantial compliance with Production Practice 3.1

not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: Environmental monitoring is done by all three sites. The only site with discharge to surface water

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is the DuPont site. Continuous monitoring of effluent is performed. Surface water is tested annually and cyanide concentrations have been below detection levels. Groundwater is monitored by DuPont and Carlin. Records showed that cyanide concentrations have been either below detection limits or below action levels. Air monitoring is done by all sites and records reviewed during the audit show that cyanide concentrations have been within permitted levels.

4. TRAINING: *Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.*

Production Practice 4.1: *Train employees to operate the plant in a manner that minimizes the potential for cyanide exposures and releases.*

The operation is in full compliance with
 in substantial compliance with Production Practice 4.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: Training records were available at all three locations. Although training methods varied slightly, a sample of training records confirmed that employees were appropriately trained prior to working with cyanide. Training effectiveness was judged at each site via testing or skill demonstrations.

Production Practice 4.2: *Train employees to respond to cyanide exposures and releases.*

The operation is in full compliance with
 in substantial compliance with Production Practice 4.2
 not in compliance with
 not subject to

Summarize the basis for this Finding/Deficiencies Identified: Employees at all sites are trained on emergency response procedures, including the response to a cyanide leak or exposure. Refresher training is given periodically. Records were sufficiently detailed to demonstrate conformance. Interviews confirmed that employees understand and are aware of the emergency response procedures.

5. EMERGENCY RESPONSE: *Protect communities and the environment through the development of emergency response strategies and capabilities.*

Production Practice 5.1: *Prepare detailed emergency response plans for potential cyanide releases.*

in full compliance with

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The operation is in substantial compliance with Production Practice 5.1
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: The Emergency Response Plans from each site were reviewed. They were found to be appropriately detailed. Different types of emergencies are addressed by the plans and the steps to be taken for on-site and off-site notifications are clear. The roles and responsibilities of the response personnel are well defined.

Production Practice 5.2: *Involve site personnel and stakeholders in the planning process.*

The operation is in full compliance with
 in substantial compliance with Production Practice 5.2
 not in compliance with

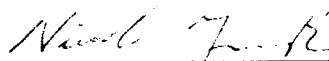
Summarize the basis for this Finding/Deficiencies Identified: Site personnel at each location are involved in the emergency planning process. DuPont takes responsibility for interfacing with external stakeholders and ensuring they are involved in the emergency planning process. This is accomplished primarily through involvement in the Memphis/Shelby (TN) County Local Emergency Planning Committee (LEPC), the Elko County (NV) LEPC and hospitals that are near each site.

Production Practice 5.3: *Designate appropriate personnel and commit necessary equipment and resources for emergency response.*

The operation is in full compliance with
 in substantial compliance with Production Practice 5.3
 not in compliance with

Summarize the basis for this Finding/Deficiencies Identified: The emergency response plans for each site clearly designate roles & responsibilities, call-out procedures, and list current phone numbers. Appropriate emergency response equipment was available at each site. Equipment located at appropriate places on-site was observed during the audit and inspection records were sampled.

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Production Practice 5.4: *Develop procedures for internal and external emergency notification and reporting.*

in full compliance with

in substantial compliance with

not in compliance with

Production Practice 5.4

The operation is

Summarize the basis for this Finding/Deficiencies Identified: Each site's ERP had a detailed list of internal and external stakeholders that need to be notified depending on the nature of the emergency. Procedures are in place to ensure that timely communications and notifications are made in the event of an emergency.

Production Practice 5.5: *Incorporate into response plans and remediation measures monitoring elements that account for the additional hazards of using cyanide treatment chemicals.*

in full compliance with

in substantial compliance with

not in compliance with

Production Practice 5.5

The operation is

Summarize the basis for this Finding/Deficiencies Identified: DuPont product stewardship personnel and environmental personnel are involved in developing comprehensive environmental plans in the event of a spill. The only location with access to surface water is the DuPont site. Monitoring requirements are detailed in site procedures and the Environmental Monitoring Annual Report. In the event of a spill, professional remediation services would also be engaged.

Production Practice 5.6: *Periodically evaluate response procedures and capabilities and revise them as needed.*

in full compliance with

in substantial compliance with

not in compliance with

Production Practice 5.6

The operation is

Summarize the basis for this Finding/Deficiencies Identified: Each site reviews the adequacy of its ERP regularly and conducts between two and four drills per year. Drill critiques are conducted with those who were involved. Action items for revisions to the plan are identified, as necessary, and tracked to closure.

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Nick F. R.

Lead Auditor

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